

# Traffic Synchronization in Austin, Texas

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## Dispelling Traffic Misconceptions

*The Good, The Bad and the Ugly*





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### What is Synchronization?

- ☑ It is a traffic management tool
- ☑ Lights turn green in succession about every 7 or 8 seconds downtown
- ☑ 25 second time window in downtown
- ☑ Allows vehicles to maintain speed of travel



Single one-way street  
Lavaca 2<sup>nd</sup> to 15<sup>th</sup> street

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## Synchronization/Sequencing

### ☑ Synchronization Methods

1. All lights turn green at the same time
2. Lights turn green in succession

## Houston Chronicle

Jan. 8, 2004, 8:11AM

### Traffic signal project begins

White launches effort to reduce congestion along 14 corridors  
By KRISTEN MACK  
Copyright 2004 Houston Chronicle

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#### PLAN GETS GREEN LIGHT

Depending on other areas' needs, the city will synchronize some traffic signals and make others work sequentially. Total cost of the project is \$3 million. The plan is to be completed by the end of the year.



Currently, City crews are coordinating the timing on traffic lights in the section of Midtown.

**DIRECT LAMB**  
is Synchronization:  
All lights turn green at once, allowing traffic to move several blocks before stopping again. Central Core already will use technology  
**is Sequencing:**  
Lights turn green in sequence, so that traffic moving at a set speed can continue for a long distance without stopping. Newer, more expensive technology is needed to do this effectively.

Jay Carr / Chronicle

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## Biggest Misconceptions About Traffic Lights in Austin

1. Synchronization fixes congestion
2. All streets can be synchronized in all directions
3. None of the streets in Austin are synchronized
4. Austin is still a small town
5. The City is not trying to solve the congestion problem

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## Traffic Synchronization Misconceptions

1. *Synchronization fixes congestion*

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The Truth Is:  
Synchronization is **NOT** the  
Silver Bullet to Solve Congestion

**Here's Why:**

1. Failing intersections



6th St. at Lamar

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The Truth Is:  
Synchronization is **NOT** the  
Silver Bullet to Solve Congestion

**Here's Why:**

1. Failing intersections
2. Limited lane capacity



I35 at Riverside

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The Truth Is:  
Synchronization is **NOT** the  
Silver Bullet to Solve Congestion

**Here's Why:**

1. Failing intersections
2. Limited lane capacity
3. Turning movement restrictions



Lamar at MLK/24th

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The Truth Is:  
Synchronization is NOT the  
Silver Bullet to Solve Congestion

Here's Why:

1. Failing intersections
2. Limited lane capacity
3. Turning movement restrictions
4. Conflicts with high volume cross streets



William Cannon at US HWY 290

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The Truth Is:  
Synchronization is NOT the  
Silver Bullet to Solve Congestion

Here's Why:

1. Failing intersections
2. Limited lane capacity
3. Turning movement restrictions
4. Conflicts with high volume cross streets
5. Downtown grid system complexity



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The Truth Is:  
Synchronization is NOT the  
Silver Bullet to Solve Congestion

Here's Why:

5. Left-turn arrows decrease capacity
6. More **GREEN** for street A means more **RED** for street B
7. Not all vehicles that enter during the green phase will experience progression

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**Traffic Synchronization  
Misconceptions**

**2. All streets can be synchronized  
in all directions**

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**The Truth Is:  
Not all Streets Can be Synchronized  
in All Directions**

**Synchronization – Easiest to Most Difficult**

- ☑ Single one-way street
- ☑ Two-way street with synchronization in one direction
- ☑ Two-way street where synchronization is needed in both directions
- ☑ Synchronization on main street and on cross street
- ☑ Synchronization on multiple streets in multiple directions – downtown grid network

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**The Truth Is:  
Not all Streets Can be Synchronized  
in All Directions**

**Grid Network**

- ☑ High priority downtown synchronization  
Lamar, Lavaca, Guadalupe, Cesar Chavez, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>  
and 11<sup>th</sup>
- ☑ Secondary priority downtown synchronization  
San Jacinto, 2<sup>nd</sup>, 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup>
- ☑ Low priority downtown synchronization  
Congress, Red River, 3<sup>rd</sup>, 4<sup>th</sup>, Brazos,  
Colorado and Trinity

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**The Truth Is:  
Not all Streets Can be Synchronized  
in All Directions**

**Level of Priority:**  
 — High  
 — Secondary  
 — Low

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**Traffic Synchronization  
Misconceptions**

**3. None of the Signals  
in Austin  
Are Synchronized**

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**The Truth Is:  
Most of Austin's Lights Are Synchronized**

- ☑ The City has 786 signals
- ☑ The State has 47 signals
- ☑ 90% of signals on the City's major roads are synchronized

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The Truth Is:  
Most of Austin's Lights Are Synchronized

✉ Synchronization is easier outside the urban core than inside the core



Lamar southbound 5<sup>th</sup> St. to Ben White Blvd.  
no stops

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The Truth Is:  
Most of Austin's Lights Are Synchronized  
Outside Downtown Synchronized Streets Work Well

- ✉ Riverside  
Lakeshore to Montopolis,  
South Congress to I-35
- ✉ South Congress  
Riverside to Shoranon
- ✉ Lamar  
Panther to 12<sup>th</sup> and Morrow to  
Downtown, AM Peak
- ✉ 15<sup>th</sup> St.  
West to I-35
- ✉ Parmer  
Mopec to I-35



Congress northbound  
Lightsey to Riverside Dr.  
no stops

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Traffic Synchronization  
Misconceptions

**4. Austin**

*is*

**Still a Small Town**

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**The Truth Is:  
Austin is a Major City  
with Major City Congestion**

- ✉ Since 1980 the metropolitan statistical area population has increased about 130%
- ✉ Congestion grows even faster than the city grows
- ✉ In the same time period the vehicle miles traveled has increased 168%

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**The Truth Is:  
Austin is a Major City  
with Major City Congestion**

- ✉ Mobility is impacted by existing neighborhood concerns
- ✉ Requires multi-dimensional approach:  
rapid-bus, toll/high occupancy and other managed lanes, mixed-use transit oriented development

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**The Truth Is:  
Austin is a Major City  
with Major City Congestion**

- ☒ The average per capita cost of congestion in Austin in 2001 was about 15% greater than the national average
- ☒ Total person hours of delay was over twice that for Austin's peer cities
- ☒ In order for congestion not to get worse the Austin region would have to build 70 street lane miles annually
- ☒ The national average of transit or carpool riders needed to maintain congestion at a constant level is 82,000 – the Austin region needs 108,000

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**Traffic Synchronization  
Misconceptions**

**5. The City is Not Trying To  
Solve the Congestion Problem**

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**The Truth Is:  
The City is Working to Solve the Congestion Problem**

The City Council has made regional mobility a major priority

- ☒ \$124 million from the 1984 bonds on transportation improvements
- ☒ \$76 million from the 1998 bonds on transportation improvements
  - ☒ \$21 million for the Traffic Management Center including \$4.5 million in grants
- ☒ \$15 million a year from year 2000 bonds on regional mobility for a total of \$150 Million over 10 years
- ☒ \$93 million since 2001 from the Cap Metro Build Greater Austin and ¼ cent funding for:
  - ☒ \$50 million for roadway improvements
  - ☒ \$30 million for right-of-way
  - ☒ \$13 million for bicycle/pedestrian improvements

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**The Truth Is:  
The City is Working to Solve the Congestion Problem**

**The Traffic Management Center - \$21 million**



- ☑ Construction of the Traffic Management Center (TMC)
- ☑ Implementation of the communications backbone
- ☑ 54% (423 of the 786) of all traffic signals were connected to the TMC
- ☑ 85 closed circuit television cameras were connected to the TMC
- ☑ 120 miles of fiber optic cable communications network
- ☑ 700 advanced traffic controllers

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**The Truth Is:  
The City is Working to Solve the Congestion Problem**

**The Traffic Management Center**

- ☑ Remotely monitor signal operation
- ☑ Visually confirm incidents/congestion
- ☑ Correct malfunctions and modify signal timing in real time
- ☑ Re-timing one-third of signals annually to achieve 17% reduction in travel time each year



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**The Truth Is:  
The City is Working to Solve the Congestion Problem**

**The Traffic Management Center**



- ☑ State-of-the-art technology
- ☑ The center has served as guide for transportation professionals including those from: Dallas, Houston, Harris County, Corpus Christi, Garland, Georgia DOT, Stockton, CA, Broward County, FL
- ☑ Austin system is the model for ongoing signal upgrade efforts in Harris County, Grand Prairie and Irving.

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**The Truth Is:**  
**The City is Working to Solve the Congestion Problem**  
**March 2000 Peer Review of Traffic Signal Operations**

"The approach used by the City staff to  
 ...maximize coordination opportunities...  
 should be applauded."

"Your staff deploys innovative technologies to deal  
 with time-of-day fluctuations  
 in traffic demand."

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**The Truth Is:**  
**The City is Working to Solve the Congestion Problem**  
**March 2000 Peer Review of Traffic Signal Operations**

"The City of Austin's  
 traffic signal engineering staff  
 demonstrates an impressive track record for  
 dealing with signal operations issues..."

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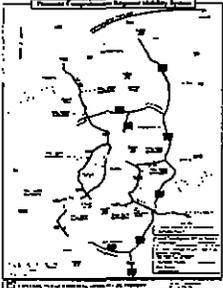
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**Where Does Austin Go From Here?**  
**Austin Works with its Regional Partners to Add Lane Miles**

- ✉ Creation of the Austin-San Antonio Commuter Rail District and the Central Texas Regional Mobility Authority
- ✉ Development of the Cap Metro Long Range Plan that includes rapid bus transit and possibly commuter rail
- ✉ New toll roads are being constructed and High Occupancy Vehicle/High Occupancy Toll Lanes are under consideration
- ✉ In Central Texas TX DOT has begun the single largest road construction package in the U.S. at \$1.5 billion



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## Where Does Austin Go From Here?

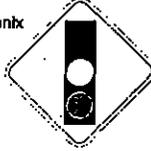
### Additional public peer review

Traffic managers and academic experts will be invited for an April 2004 visit including those from:

Houston, Dallas, Portland, Los Angeles and Phoenix

### Continue system expansion

### Inspection of other metropolitan systems



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## Five Truths About Traffic Lights in Austin

1. Synchronization is NOT the silver bullet to solve congestion
2. Not all Streets can be synchronized in all directions
3. Most of Austin's lights are synchronized
4. Austin is a major city with major city congestion
5. The City is working to solve the congestion problem

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